Wisconsin Highway Research Program
Request for Proposals
FY 2007

Problem Title

Investigation of the Use of Open-Graded Friction Courses in Wisconsin

Background and Problem Statement

The use of open-graded friction courses has been increasing across the United States. They are being promoted as a method to increase safety because of their more open and porous surface texture. This texture is stated as increasing friction characteristics and decreasing tire splash. As Wisconsin is looking at increasing its usage of the perpetual pavement concept, open-graded friction courses may provide another option for use as the renewable surface layer for this application. Open-graded friction courses have historically not been used in Wisconsin due to concerns about their performance in a climate with our number of freeze-thaw cycles. Questions also exist about the cost/benefit of these mixtures.

Scope of Work/Objective

The primary objectives of this study are to determine if open-graded friction courses can be successfully and economically used in Wisconsin, along with recommended applications, reported benefits, and design parameters.

Specific tasks may include:

1) Literature Review and Survey of States. Collect and review relevant literature related to the study objectives and obtain information to determine if open-graded friction courses are successfully being used in states that have similar climatic conditions as Wisconsin, especially considering freeze-thaw cycles, determine specific applications in which they are used by other states, and what design parameters are being used. Also document any reported benefits of utilizing open-graded friction courses. Include any recommendations made by NCAT, NAPA, Asphalt Institute, etc.

2) Cost Analysis. Provide a cost comparison of open-graded friction courses as compared to the standard mixtures and SMA's currently in use in Wisconsin.

3) Final Report. Document results and findings from Tasks 1 and 2, along with recommendations for implementing into practice. This should include a recommendation for design parameters and applications for use, detailing the reasons for the proposed recommendations. Report should also include draft language for incorporating the recommendations into the Wisconsin Department of Transportation's Standard Specifications and Facility Development Manual.

Specific Results, Findings, Tools, etc. (Deliverables)

The results of this research are to determine if open-graded friction courses can be expected to perform in Wisconsin's climatic conditions and define the applications in which they may be most beneficial for use, while also considering costs. This study is also expected to provide recommendations for possible revisions to the WisDOT construction specifications and facility design manual.

Length of Research and Approximate Cost to Complete

It is estimated that that the time required for this project should be approximately 12 months. The submitted project schedule should allow for a 3-month timeframe for the Department and researcher to review/revise the final report. The cost for this work is estimated to be $40,000. This cost should include production and submittal of 85 hard copies, 80 to WisDOT and 5 to WHRP, and one electronic copy of the final report. Time and cost estimates supplied in the research proposals will be evaluated by the TOC as part of the selection criteria.

The study is not controlled by the construction season and can be performed throughout the fiscal year, nor does it require any laboratory work.

Urgency and Potential Research Benefits

The benefits of utilizing open-graded friction courses may aid in increasing the safety of the traveling public by further enhancement of our pavement structures. This may even prove to be more important by providing additional economical options as Wisconsin moves into utilizing the perpetual pavement concept, where open-graded friction courses may add benefit as an option for the renewable surface layer.